

ACHIEVEMENT MOTIVATION AND SUCCESS IN ATYPICAL SEX-TYPED  
TASKS

by

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## Achievement Motivation and Success in Atypical Sex-typed Tasks

The accelerated increase in the number of working women in the United States since the beginning of the Industrial age has had a significant impact on all facets of our society, from economic conditions to social relationships. Eisenstein (1983) noted that economic depression and the disruption of the family by urbanization and immigration at the turn of the century were the initial catalysts for this influx. "The extent of increase is indicated by the fact that in 1890 a little over one million women were employed outside the home; twenty years later, in 1910, the figure had risen to about eight million" (p. 13). Today, that figure continues its steady climb. In 1982, 47.6% of all women (43 million) worked outside the home (U.S. Bureau of Census, 1983) as compared to 32% in 1947, and it is estimated that by the year 1990, this percentage will be 54.8% (Smith, 1979).

Smith (1979), an economist, noted the widely diverse causes and consequences of this phenomenon, but also that the occupations in which women have been centered have been less diverse. "Women's work" has consisted mainly of low-paying, low-prestige jobs; in 1982, 34.4% of women who worked were employed in clerical

occupations, while 19.7% were service workers (U.S. Bureau of the Census, 1984).

Psychologists have also noted these trends in women's work. Their investigations have involved the use of such factors as women's socialization, institutional barriers, sex-typing of jobs, and motivational differences to explain women's career aspirations (O'Leary, 1974). In the past several years these motivational explanations have become increasingly popular, and research in the area of achievement motivation has grown especially rapidly. It is to this body of work that this paper now turns. The discussion focuses on findings that have led to the conclusion that women's achievement motivation is different from men's, explores some of the explanations that have been set forth to interpret these findings, and presents some original research designed to investigate the effects of certain situational variables on this difference.

#### Early Work on Achievement Motivation

The need for achievement (or *n* Ach) construct can be traced historically to the writings of Murray (1938). This is where the notion of higher-order needs was first brought to the forefront of the motivation literature. The need for achievement was only one of many higher-order needs identified. Murray termed these types of needs psychogenic

and contrasted them with basic physiological needs such as hunger. He defined n Ach as the need "to overcome obstacles, to exercise power, to strive to do something difficult as well and as quickly as possible" (p. 80-81).

In addition to the initial description of higher-order needs, Murray's (1938) major contribution was the development of a projective measure called the Thematic Apperception Test, or TAT. He assumed that given an ambiguous stimulus, a person will project his or her needs onto that stimulus in proportion to their presence in his or her personality. In this case the stimulus consists of a series of pictures about which the subject is asked to compose imaginative stories. An elaborate scoring scheme was devised to determine the amount of each need projected into each story. High scores on n Ach, for example, require an indication that the person is motivated by the need to achieve, which might include references to such things as academic or career success.

Focusing specifically on n Ach, McClelland, Atkinson, Clark, and Lowell (1953) used the TAT extensively and standardized its scoring for use in laboratory situations. Assuming that the motive to achieve was the major determinant of anyone's striving for success, McClelland et al. began to notice sex differences in the manifestation of

the achievement motive as reflected in TAT scores. Their experiments involved the experimental manipulation of  $n$  Ach by varying the number of achievement-motivating cues in the situation immediately preceding the administration of the  $n$  Ach measure. This was usually done by having subjects perform some sort of task beforehand that was purported to be highly correlated with intelligence and leadership ability. The emergence of a consistent body of data has allowed for the prediction of  $n$  Ach scores as a function of arousal condition, but only in men. The arousal of the achievement motive in women has produce puzzling and ambiguous results (French & Lesser, 1964; Isaacson, 1964; Lesser, Krawitz, & Packard, 1963; Veroff, Willcox, & Atkinson, 1953).

The original conflicting results (Veroff, 1950, cited in McClelland et al., 1953) showed women's  $n$  Ach scores to be higher than men's in a neutral condition; that is, one that was presumably not achievement-arousing. The women's scores did not increase, however, from the neutral to the achievement-oriented condition as did the men's. Interestingly enough, this finding did not hold for either sex for stories told to TAT pictures that were of women rather than men; neither sex wrote achievement stories to pictures that contained women. McClelland et al. commented

that achievement imagery, as they had defined it, was apparently associated with male picture cues more than female ones. They stated, "even girls project achievement striving primarily into the activities of men" (p. 173). It was also argued that perhaps any test situation in which girls are competing in the same setting as boys, as they were in Veroff's experiment, contains more achievement motivating cues for the girls. Veroff et al. (1953) found, however, that these results remained the same when the women were tested in small, private groups in their dorm rooms by a female experimenter. They noted, "striving for achievement is without question identified with the male role in our data" (p. 115).

Atkinson (1964) developed his own theory of achievement behavior that was based directly on McClelland et al.'s (1953), but couched in a behavioral framework. Atkinson refers to the motivation to approach success as  $T_g$ , the tendency to achieve success. He considers it a function of three things. The first of these is  $M_g$ , or the motive to achieve success. This is the same as McClelland's  $n_{Ach}$  and is also measured with the TAT. It is considered a stable and enduring attribute of the person. The second component of  $T_g$  is the person's subjective probability of succeeding in the achievement situation ( $P_g$ ); the third is the



incentive value of that success,  $I_S$ . These components are assumed to be multiplicatively related to one another, so that if any of them is zero,  $T_S$  is zero ( $T_S = M_S \times P_S \times I_S$ ).

In order to calculate  $T_S$  for a particular situation, it is necessary to know  $M_S$  for each person. It is assumed to be a stable personality characteristic, unchanging from situation to situation.  $P_S$ , however, should change depending on the task, as does  $I_S$ . One only needs to know  $P_S$  and  $M_S$ , however, to arrive at a value for  $T_S$ , since  $I_S = 1 - P_S$ . This makes sense, since success on a difficult task should be more highly valued than success on a very easy task. If the probability of getting an A in a course is perceived to be .9,  $I_S$  will be equal to .1 since getting an A in an easy course is not very highly valued. In fact, in a study done by Atkinson (1959), subjects reported that the amount of money that they thought a "ringer" was worth in a ring toss game was directly related to the distance they stood from the target; that is, the further away they stood, the more highly they valued success.

Atkinson's work has resulted in a clear picture of the behaviors typical of the male achiever. He is independent and persistent, and maintains an internalized standard of excellence. He undertakes realistic tasks and performs well academically. By knowing the level of his motivation to

achieve and how high a probability of success he perceives himself as having for a given task, his tendency to achieve at that task can be predicted. Yet these results do not have the same predictive power for females, perhaps because the expectancies for and incentive values of achievement-related success differ for males and females.

#### • Responses to the Finding of Sex Differences

Responses to the inability of researchers to explain the data on women took four basic forms, the first of which can hardly be called a response. It was to ignore the phenomenon altogether, to consider women the exception to the rule, and to proceed using only men. Denmark, Tangri, and McCandless (1978) noted that the fact that the emerging theory was only being confirmed for male subjects appeared to lead most researchers to the conclusion that women were somehow deficient as subjects. The sex difference was often relegated to a footnote, if mentioned at all. This would have been entirely acceptable were it not for the fact that the theory was touted to explain achievement behavior in everyone rather than just males. But to consider an entire half of the population an anomaly seemed to be ignoring an important dynamic that should probably be included in the theory.

The other three responses to the finding of a sex difference in achievement motivation were attempts to address the issue directly, although they dealt with it in different ways. They were: 1) to explain the conflicting findings in terms of inappropriate methodology; 2) to claim that women do not have a need to achieve, or if they do, that it is subordinate to other needs; and 3) to interpret the results in light of cultural influences on women. These approaches are addressed separately in the following sections.

#### Methodological Criticisms

In the early 1950s, women in career situations were often perceived as being there because they had been unsuccessful in romance and were working by default, not because they were motivated to do so. This would tend to lower the amount of achievement imagery in stories to pictures of women in work situations. Another possibility is that the achievement-cue strength in these pictures was too high, and aroused avoidance reactions because career considerations were not thought to be feminine at that time. Support for both of these interpretations will be considered in following sections. In either case, it could be that the subjects were writing stories based on stereotypic beliefs about the "right" way to respond, rather than based on some

underlying personality dimension. If the stories did not reflect individual motivation or if they reflected multiple, contradictory aspects of motivation, at least only a slight relationship with achievement behavior could be obtained. This interpretation lends support to the argument that the TAT is an invalid assessment procedure for achievement motivation in women (Denmark et al., 1978; Entwistle, 1972). In response to this criticism, Spence and Helmreich (1983) developed a measure of achievement motivation that conceives of n Ach as consisting of multiple dimensions rather than only one.

Entwistle (1972) maintained that fantasy-based measures of achievement motivation have psychometric weaknesses that are probably sufficient in themselves to produce the discrepant results discussed so far. Focusing specifically on the reliability of projective tests of n Ach, Entwistle noted the scant amount of reliability information available. When reported, reliability is usually presented in the form of interrater agreement. She regarded this as irrelevant, however, since "two scorers could agree with one another perfectly in assigning scores for each picture, but if the scores are uncorrelated from one picture to the next, the total score is made up of a series of unrelated numbers" (p. 383). She therefore reanalyzed some previously published,

as well as unpublished, data and determined measures of internal consistency of TAT-type measures, using individual pictures as items, to be about .30. Further, when results were broken down by race and sex, the highest reliabilities were found for white males. Entwistle suggested that one reason for the decreased predictive validity of fantasy-based measures for females (e.g., Klinger, 1966) is this lower reliability. The reliability for boys in a 9th grade sample that she reanalyzed is low (.33), even without comparison with the girls' (.27). Entwistle felt that studies showing a consistent relationship between boys' achievement scores and academic performance are therefore better explained by the correlation between productivity (number of words written in response to a TAT story) and grades, which is higher for males than for females.

The whole assumption underlying the use of a fantasy measure to assess motivation has been severely debated. Broverman, Jordan, and Phillips (1960) opposed what they referred to as the general-expression model that motives are concurrently reflected in both fantasy and behavior. They proposed an alternate channel model which states that fantasy serves as a substitute channel for the expression of achievement motivation when achievement behavior is blocked in real life. This model was based on their result that

showed higher achievement fantasy in younger than older subjects. Rejecting the notion that the younger subjects simply had a higher need to achieve, they proposed that they were unable to express the motive in their behavior so they expressed it on the TAT instead. Broverman et al. were able to demonstrate an inverse relationship between behavioral indices relevant to employment and scores on a TAT-type measure. Apparently, people who perform poorly on the job can be said to have a higher need to achieve because they are frustrated in real life situations.

To account for the studies that show increased performance levels in subjects who score high on fantasy-based n Ach measures, Broverman et al. stated that these performance tasks (e.g., ring-tosses or anagrams) actually lead to increased performance among persons with low motivation to achieve in real life because they are much simpler than any problems the subjects might encounter in the real world. Therefore, low n Ach subjects do better in the lab because they cannot do well on real life tasks; the lab tasks are their "alternate channel." Alternatively, low "lab strivers" get satisfaction from real life and do not need to achieve through simple lab tasks, or through fantasy. While no further research could be found, these results are quite compelling and highlight the need

for a closer look at the relationship between fantasy and behavior.

#### The Inhibition of n Ach by Other Needs

McClelland et al. (1953) originally advanced the hypothesis that women's achievement motivation was inhibited by another more dominant motive, namely the need to affiliate (n Aff). This idea was based on a study done by Field (1951, cited by McClelland et al.) which was designed to refute the hypothesis that the scores of the female subjects could not be raised in the achievement-arousing conditions because they had reached a ceiling and could go no farther. Field was able to increase women's achievement imagery when his instructions involved social acceptability. Variations in reported social acceptability had no effect on the n Ach scores of males, whereas for females the effect was marked. McClelland et al. interpreted these findings to mean that for women, the achievement motive is less central than the affiliation motive, whereas the reverse is true for men.

Hoffman (1972) also theorized that girls are motivated by a desire for love and social approval, whereas boys are guided by mastery strivings and a desire for excellence. She attributed the female desire for approval to current patterns of child rearing in which the female child is given

Inadequate parental encouragement in early strivings for independence.

This logic has contributed to further conclusions that the motive to achieve is of a basically different nature for women than for men. Females were said to engage in achievement activities because of motivations for social acceptability, approval of others, and affiliation needs. Males were said to be motivated to achieve predominantly because of their internalized standards of excellence. This early conclusion served to reinforce stereotypical assumptions that women are more motivated by social needs than strivings for success, as well as to guide the direction of the majority of future research. It seems apparent that women's n Ach scores are affected or, in fact, even inhibited by socialization and n Aff factors. However, the statement that women's achievement orientation is fundamentally different from men's is an entirely different proposition, and to equate the two is to inhibit women's achievement strivings, which could be detrimental to career development (Fitzgerald & Crites, 1980). Indeed as Denmark et al. (1978) noted, no one has ever suggested that achievement motivation in males might be due to recognition or status-seeking orientations, despite the fact that the two are closely associated.



In another version of the approach which posits more dominant motivations that inhibit achievement strivings, Horner (1972) claimed that women often exhibit what she called a "motive to avoid success." When asked to write a story to the cue "At the end of first semester finals, Anne finds herself at the top of her med school class," 65.5% of the women in her sample showed signs of a fear of success. These motive-to-avoid-success (MAS) women told stories in which Anne was depicted as a social misfit, disliked by others (especially by men), and generally unhappy as a direct result of her success. The men in her study showed no evidence of this motive. Horner conceived of MAS as an internal psychological representation of the societal stereotype that values achievement for men, but not for women. In this conceptualization, competence, independence, competition, and intellectual achievement are considered to be basically inconsistent with femininity.

This "fear of success" notion caught on quickly and became immediately popular with both the scientific and lay communities (Tresemer, 1976). The criticisms were numerous, however, and stemmed largely from the inability of most researchers to replicate the findings. Condry and Dyer (1976) reviewed a number of studies designed for the purpose of direct replication; better than 80% of these did not

support the fear of success hypothesis. Spence (1974) noted that a few very turbulent years had passed since Horner's original work (her doctoral dissertation data were collected in 1964), which may have resulted in a change in the attitudinal climate in which subjects formed their impressions of what it meant to be a successful woman.

A number of methodological issues have emerged that may explain these contradictory results. Spence (1974) and Zuckerman and Wheeler (1975) criticized Horner's method of scoring the stories for fear of success imagery. Her procedure was to use a simple presence/absence coding scheme, counting all those stories with negative imagery as exhibiting fear of success. Spence calls this procedure "dangerous" (p. 437), noting that the "Anne in medical school" cue is a highly structured one in contrast to the regular TAT stimulus. Responses to the "Anne" cue are likely to be influenced by a number of factors that are unrelated to any stable personality characteristics, but are related instead to the content of the stimulus itself or perhaps even to the setting in which the stimulus is administered, resulting in biased percentages. Spence also noted that the exact nature of the negative imagery is obscured, which is important in light of the fact that she failed to obtain any of the bizarre responses which Horner

seemed to elicit from her female subjects (e.g., the assertion that Anne is a code name for a group of med school students). The negative responses in Spence's study were more along the lines of Anne's role conflicts or the problems of career and family, which were usually resolved.

Spence (1974) also questioned the generalizability of Horner's initial findings. Since the stories were dependent on the content of the cue, as mentioned previously, it was also very likely that the results were due to other factors that were unique to the particular setting. For example, some of Horner's data were obtained from women at Radcliffe College which, in addition to being a highly elite and competitive institution, was also undergoing an integration with Harvard University at the time of her work. This factor may have had an effect on the results, in view of the failure of most attempts at replication.

Wood and Greenfeld (1976) echoed these concerns about generalizability. Their sample consisted of male and female managers tested in the field; there was no significant sex difference in the amount of fear of success imagery. The hypothesis that high fear of success women do not get to be managers may be discounted, since some of these were found in the study along with some men who had a high fear of success. They suggested that the fear which directs the

motive is probably diminishing, no doubt reflecting changes resulting from gains women have made in terms of modification of men's and women's behavior and attitudes.

Zuckerman and Wheeler (1975) noted some of the problems with the reliability of Horner's measure. First, it is impossible to obtain internal consistency estimates of reliability, since the measure only consists of one item. In one study (Karabenick & Marshall, 1974), investigators administered several cues to the same subjects and found a fairly low correspondence of scores across cues. In response to four different verbal leads, the percentages of subjects that responded with fear of success imagery were 37%, 41%, 41%, and 54%, indicating that there were many subjects who did not show negative imagery across all four cues. (Also note that these percentages are quite low in comparison to Horner's finding of 62%, and in light of the fact that with a dichotomous scoring scheme, 50% of the subjects would be expected by chance to show some negative imagery.)

As noted, there is not really any way to compute internal consistency coefficients, but there is not any reason to suspect that these would be any higher than Entwistle's (1972) reported reliabilities of fantasy-based measures in the .30-.40 range. Zuckerman and Wheeler (1975)

cited a report by Moore (1974) in which test-retest reliabilities with a one-year interval were computed; only 73% of her subjects got the same score on both measures.

Zuckerman and Wheeler (1975) also noted that the lack of any substantive scoring scheme probably means that the scoring was conducted differently in every study in which it was used. This is reflected by the finding that fear of success scores may be influenced by whether or not the judge knows the sex of the subject. They also cited the finding that female scorers tend to code stories as having negative imagery more often than male scorers, although interestingly enough, this may actually be interpreted in support of the hypothesis that these women themselves are more fearful of success.

Condry and Dyer (1976) criticized Horner for failing to complete her research design. They pointed out that the men in her study never responded to the "Anne" cue, but only to a similar cue about John. Alper (1974) gave both types of cues to subjects of both sexes and found that a correspondingly high number of males wrote negative stories to female cues. This seems to indicate that the stories are reflecting actual societal sanctions against successful women rather than any underlying motivation. Furthermore, Alper found less fear of success when Anne found herself at

the top of her "nursing school" class than when she was at the top of her med school class. Apparently, the extent to which Anne's success is seen as being deviant or non-stereotypically female increases the amount of fear of success in the subjects' stories. This seems to suggest that it is the deviancy to which subjects are responding, not the success.

Taken together, these studies show very little support for the fear of success notion or its measurement as formulated by Horner (1972). It most likely does not reflect a stable and enduring personality trait, it is not differentially evident in women rather than men, and it is not consistently measured from study to study. Although Tresemer (1976) suggested it "may not be a motive and have little to do with success" (p. 875), he did not entirely discount the usefulness of the resulting literature. Nor do Condry and Dyer (1976), who proposed that fear of success may be more useful when thought of as a situational variable. As Spence (1974) eloquently put it, "The 'motive to avoid success' serves well as a metaphorical label for the constellation of internal and external factors associated with sex-role expectations whose end result is often to lessen women's achievement strivings" (p. 428).

### Cultural Approaches to Women's Achievement Motivation

The furor surrounding the idea of an actual fear of succeeding in women and its resolution have paved the way for the fourth response to charges of sex differences in achievement motivation; that is, explanations based on referrals to cultural or societal factors.

Stein and Bailey (1975) criticized Hoffman's (1972) claim that women are motivated by  $n$  Aff rather than  $n$  Ach. They argued that women are not solely motivated by social approval but rather strive for excellence in the social arena. In other words, because social behaviors have been considered appropriate for women, it is here they satisfy their need for achievement without threat of affiliative loss. Stein and Bailey cited as examples such behaviors as being a charming hostess as appropriate "women's role" achievement behaviors. This is reminiscent of Murray's (1938) claim that it does not matter at what endeavor one strives to succeed, but that whatever it is, one attempts to do it thoroughly and well. His examples included becoming a master criminal or blowing smoke rings. The influential theories that came out of his work seem to have somehow overlooked this very important point, counting only success in the professional world as "achievement."

Some interesting studies that investigated the effect of sex role orientation on achievement have shown quite clearly that societal expectations of what is considered appropriate female behavior have a profound effect on women. Alper (1974) devised a measure to assess acceptance of traditional role orientation which she called the Wellesley Role Orientation Scale (WROS). This measure has been successfully used to support the hypothesis that traditional role-oriented women are less likely to be achievement-oriented (i.e., career-oriented) than women whose role orientation is nontraditional. She also found that women who do not conform to traditional sex-role stereotypes tell stories that contain achievement imagery in response to pictures of both sexes.

French and Lesser (1964) investigated a related idea in their study of how values and situational characteristics interact to affect the level of achievement motivation, and how values, situational characteristics, and expressed motivation interact to affect performance. The *n Ach* scores were higher when the arousal condition matched the subjects' value orientation of either intellectual or traditional. Subjects who valued intellectual attainment but not traditional women's roles had higher *n Ach* scores under intellectual arousal, while those women who subscribed to



traditional role values had higher scores when these values were aroused. Assuming that most women in the 1950's accepted societal standards of what was considered appropriate feminine behavior, this could explain the failure to elicit achievement imagery in situations that appealed to their intellect.

Changes in role orientation may also explain the lack of replicability of Horner's (1972) fear-of-success findings. Veroff, Depner, Kukla, and Douvan (1980) reported that among women, motivation to achieve increased in a national survey conducted in 1957 and again in 1976. It may be inferred from this result that fewer women are subscribing to traditional sex role prescriptions.

#### Effect of n Ach on Performance

Spence and Helmreich (1983) noted the lack of research concerning the relationship between n Ach and behavioral variables such as task performance. Veroff et al. (1953) found a relationship between achievement imagery on the TAT and scores on an anagram task for both males and females, and used this finding to support the argument that the TAT was a valid indicator of women's n Ach. Since that time, however, there has been little research done on this relationship. This is surprising, since it is behavior that is ultimately most important. It is for this reason that

this study is concerned with investigating some of the task characteristics that may have an effect on women's level of performance. It is also thought that inquiries of this type will lead to an understanding of why women's achievement behavior has not been found to be comparable to men's in the laboratory.

Most of the studies that have varied characteristics of the task have been concerned with the subjects' attributions for success or failure (e.g., Teglas, 1978). One study (Stake, 1976) found an effect on goal-setting of information concerning sex-appropriateness of the task. That is, subjects set higher goals for themselves when they were told that people of their sex performed well on that task. It would be interesting to see whether this result would also be true when performance rather than goal-setting is measured.

Steers (1975) found  $n$  Ach to be significantly related to both performance and satisfaction for high  $n$  Ach subjects. This makes sense, since high  $n$  Ach subjects would tend to place a higher reward value on the attainment of their goals, assuming these objectives serve to cue achievement-oriented behaviors. Thus, when the tasks are of a challenging nature, it could be hypothesized that high  $n$  Ach subjects will manifest high expectations of task

accomplishment and will exhibit a high level of effort or involvement in their work. When such effort leads to actual task accomplishment (i.e., good performance), individuals with a high level of need for achievement will receive more rewards, administered both intrinsically and extrinsically. Low n Ach subjects, on the other hand, may be less concerned about (and less committed to) high levels of performance. Instead, such individuals may be motivated by other needs such as affiliation.

It seems appropriate to ask whether n Ach is an important personality characteristic in women who endeavor to succeed at a task that is traditionally considered suitable for men, given the sex segregation of occupations noted at the beginning of this paper. An interesting extension of this would be an investigation of the achievement structure of all persons who strive for success at a task that is stereotypically held to be atypical of people of their gender. The emphasis here will be on achievement across sex-typing in both males and females, since the achievement of men at a task thought to be "feminine" is considered to be equally important. In fact, Kanter (1977) suggested that it may be impossible to increase the prestige (and salary) of jobs traditionally held by women until more men begin to take them on.

### Effect on n Ach on Expectations and Causal Attributions for Success

It is possible that one determinant of achievement-oriented behavior is people's ideas and beliefs about their performance. One kind of belief is the expectation or perceived likelihood of being successful. Crandall (1969) found generally low expectancies for success among a wide range of ages of girls and women on a wide variety of tasks. In all situations, men had higher expectations than women. Other studies, however, have failed to find such a difference (e.g., Feather & Simon, 1973). This may be due to an implicit sex-typing of the tasks performed; Feather and Simon's subjects worked at an anagram task which may have been construed to be a "feminine" one, since women are thought to be better at verbal tasks.

Another interesting aspect of the literature on sex differences in achievement motivation concerns the different attributions people make for their performance. Most of the work centers around that done by Weiner and associates (Weiner et al., 1971), who conceptualized causal attributions for success and failure in terms of four factors: ability, effort, luck, and task difficulty. Each factor is jointly classified as either internal or external

and stable or unstable. Ability and effort are considered internal factors while luck and task difficulty are external. Ability and task difficulty are stable, and luck and effort are unstable.

Sex differences in attributions have been noted by a number of authors. Weigers and Frieze (1977) found that men made more attributions to lack of effort when they failed than did women, who tended to attribute failure more to lack of ability. Conversely, women were more likely to think their successes were due to a high amount of effort than men, who attributed their success to ability. Frieze, Fisher, Hanusa, McHugh, and Valle (1978) noted that females' causal attributions seem to reflect a lack of self-esteem; for example, women have a greater tendency to invoke luck as an explanation for success. Nicholls (1975) observed what he called a "self-derogatory" pattern of attribution in grade-school girls; failure was attributed to low ability. The males in Nicholls' study were more likely to exhibit evidence of a "self-enhancement" bias. This occurs when the subject attributes his or her success more to internal causes and failure to external causes. Nicholls also found for both men and women that the self-enhancing tendency was higher when attainment value or importance attached to the task is also high. This is of interest in the present study

in light of the expectations concerning males' perception of a task labelled "feminine." If they do downgrade the task, then they should be less likely to exhibit a self-enhancing bias.

Noting the hard work and high levels of motivation necessary for professional women to succeed at what they do, Frieze et al. (1978) stated that achievement motivation may further affect women's attributions for success. Weiner and Kukla (1970) first demonstrated a relationship between attribution and level of achievement motivation. Subjects high in achievement motivation made more internal attributions for success than subjects low in achievement motivation, who attributed success to external factors such as luck. Bar-Tal and Frieze (1977) found that high achievement motivation was related to higher estimates of ability for both male and female subjects, although the effect was stronger for men. Kukla (1972) demonstrated that high achievement motivated men tend to attribute their successes to both high ability and effort, while they perceive their failure as caused by their lack of effort.

Teglas (1978) presented evidence that lack of achievement may be associated with lack of confidence in one's own abilities. He found that women who espoused the traditional feminine role were more self-derogatory in their causal

attributions than nontraditional women. That is, they were more likely to attribute their own successes to external factors such as luck or ease of the task.

Achievement-oriented women were more self-enhancing following failure, as were their male counterparts. Teglasi presented these results as a possible explanation for why traditional women do not strive to achieve in masculine domains. They consider themselves to be incapable of succeeding.

In studies by Feather (1975) and Feather and Simon (1975), subjects attributed causes of success and failure to men and women performing in traditionally male or traditionally female occupations (medicine vs. nursing or teaching). In Feather and Simon's study, there was a general tendency for successful males to be upgraded (given more internal attributions for success or external ones for failure) relative to unsuccessful males, and for unsuccessful females to be upgraded relative to successful females, regardless of occupation. Feather's study, which looked not only at attributions but also at perceived affect about succeeding and failing, found that reactions to male and female success and failure for an occupation depended upon the perceived appropriateness of the occupation for the sex concerned. In other words, success was perceived more

positively if it was consistent with sex-role expectations than if it was inconsistent, and failure was evaluated more negatively when it was inconsistent with societal conceptions about the sex-role.

Feather (1975) noted that the failure of other studies to find a result due to sex-type of the occupation may be because of some effect of subjects' levels of achievement motivation; for example, sex-type of occupation may be more salient for low achievers than high achievers. Stephan and Woolridge (1977) had male and female subjects evaluate the causes of a woman's success or failure at the inarguably masculine task of assembling an automobile carburetor. Internal attributions were made for the women who succeeded and external ones made for those who failed. They also found that female observers tended to give the actors more credit for success (internal attributions) and less blame for failure (external attributions) than did the male observers. Although these studies are concerned with responses to reasons for others' success or failure, they still indicate that subjects' gender and achievement level and the sex-type of the task in question may be important when trying to determine how they perceive their own success or failure.



### Hypotheses

Will high n Ach women perform a challenging task better when it is described as one in which women do better? Based on Stake's (1976) results, it could be hypothesized that performance would increase when the task is considered characteristically feminine. But what if these women were given feedback that they had performed better than most men on the masculine task? According to Steer's (1975) analysis, success in such a situation could be considered to be highly rewarding to a woman with a high need to achieve, since she would also theoretically be nontraditional in terms of her sex role orientation and therefore would value success in a masculine endeavor.

Karabenick and Marshall (1974) used feedback to assess the effects of expectancy of success on subsequent performance in females, and found it to be related to the subject's level of fear of failure, but not to fear of success. That is, performance increased more after failure for low fear of failure women, while those high in fear of failure improved more after succeeding on the first trial. This study will investigate whether a similar result is obtained when motivation to succeed is measured. Performance feedback subsequent to a first trial should have the effect of producing different degrees of expectancy of

success upon subsequent performance. This effect is expected to depend on the subject's sex, n Ach level, and the sex-type of the task. Subjects will therefore receive two administrations of the digit-symbol task, and improvement from Time One to Time Two will be examined

It is hypothesized, based on the research reviewed here, that:

- 1) Both males and females will perform better when told that people of their gender are typically successful at the task (Figure 1);
- 2) Performance on a task labelled "masculine" will be better overall for high n Ach women than for low n Ach women (Figure 2); and
- 3) Performance on the "masculine" task will be better for high n Ach women tested a second time after being told they had done better than most men on the first trial than high n Ach women who are told they had not performed as well as most men (Figure 3).

No findings are hypothesized concerning the performance of men on the task labelled feminine, since there is no previous research to guide such hypotheses. Some exploratory research questions might include whether labelling the task as feminine will prompt men to downgrade its meaning and therefore not perform as well, and whether n

Ach will have an effect on males' performance on either the "masculine" or "feminine" tasks.

It could be hypothesized, based on Atkinson's theory, that high n Ach men will perform better at the "masculine" task if it is highly valued (i.e., it has high incentive value). Therefore, a post-experimental questionnaire was included at the end of the experiment to determine the subjects' attitudes toward the task. Since expectations and attributions also seem to play an important role in the relationship between n Ach, performance, and sex-type of the task, these variables were also measured. While no specific hypotheses were proposed for these variables, the effect of subjects' gender, n Ach level, and the sex-type of task were examined.

## Method

### Subjects

One-hundred-ninety-eight volunteers from the General Psychology subject pool at Kansas State University, 66 males and 132 females, served as subjects. Of these, 48 of the males and 106 of the females participated in the pretesting, to be described shortly. Students in the General Psychology course sign up for participation in experiments as part of a course requirement.

### Procedure

Potential subjects in the General Psychology classes were first pretested on two different measures of n Ach: the TAT (Murray, 1940) and the Work and Family Orientation Questionnaire (WFOQ; Helmreich and Spence, 1978). The pictures were chosen from the standard TAT set (Murray, 1940). They are as follows: silhouette of a person in a doorway; faces of two men, one young and one old; a woman standing by a window with a young man next to her holding a hat; and a young boy standing in front of a surgery scene with a rifle nearby. Of these, the latter three are suggested by Atkinson (1958) for eliciting achievement imagery among male subjects. No suggestion is given by him for eliciting n Ach imagery among female subjects, in fact, he acknowledges that there is "not enough known about the

effects of pictures...to recommend a single set of pictures as a test of motivation suitable for all types of research" (p. 831).

Students were shown slides of the four TAT pictures and given four minutes to write a story about each, under the creativity instructions provided by Murray. They were then asked to complete the Work and Family Orientation Questionnaire (Appendix A). The measure was administered separately from the task to avoid any effect on the results of the test due to completion of what was presented as an intelligence-type task. The WOFO, a 23 item measure of attitudes toward work and achievement, was used in this study for three reasons. First, it was designed to be an objective measure in an attempt to do away with some of the problems discussed earlier that usually arise with a subjective measure such as the TAT (e.g., lack of reliability, difficulty in administering and scoring). Second, the measure was designed to tap the multidimensionality of the *n* Ach concept. This is thought to be important since a wide variety of factors may determine a person's strength of achievement motivation as well as the achievement-oriented activities in which people engage. Finally, the measure was developed to be valid for both males and females.

The twenty-three motivational items were factor analyzed by Helmreich and Spence (1978), yielding four distinct dimensions which were similar for each sex. These were labeled Mastery, Competitiveness, Work, and Personal Unconcern. Mastery is made up of items that indicate a desire to work on challenging or difficult tasks. The Competitive factor represents preference for winning in interpersonal situations. The Work factor is composed of positive attitudes toward work. The last factor, Personal Unconcern, is similar in conceptualization but opposite in meaning to Fear of Success, a high score indicating an absence of concern with the negative reactions of others to personal achievement.

The scales derived from the factor analysis strongly supported the idea that a multi-factor formulation of the achievement motive would be more useful than a univariate one. Although they did not report an overall reliability coefficient, Helmreich and Spence (1978) stated that "when considered as a multi-scaled instrument, the reliability...was low" (p. 4). The alpha coefficients for the Mastery scale were .61 for males and .62 for females. On the Work scale,  $\alpha = .66$  for the men and .63 for the women. Men produced an  $\alpha$  of .76 on the competitiveness scale, while for women it was .72; reliability estimates for

the Personal Unconcern scale were .50 for both males and females.

Spence and Helmreich (1978, 1980) have replicated this factor structure on a number of different samples. These have included female college students who were varsity athletes, Ph.D.-holding academic scientists, and unselected groups of high school and college students. Comparisons of college and high school students showed higher scores in the college sample on the Work and Mastery scales. Female varsity athletes scored higher than unselected college women, especially on the Competitiveness scale, and Ph.D. scientists scored higher on all the scales than a college student sample.

The students pretested on these two measures were then given the opportunity to sign up for the actual experiment, in which a task was labeled as masculine or feminine, and success feedback was manipulated. The effect of these manipulations on performance of a modified form of the Wechsler subtest called Digit Symbol Substitution (Appendix B) was then assessed. This is the same task used by Stake (1976). She used this particular task for two reasons that also make its use appropriate here. First, performance on the task can be expected to have relevance for the subjects, since it can be introduced as an IQ subtest. Second, it is

possible to present the task as one that males perform better than females, since it involves numbers and manual ability, or as one that females perform better than males since it involves verbal fluency and transcription. These factors make it desirable to use as an index of performance in this type of situation.

Groups of subjects of an average size of 10 (range 2-25) were randomly assigned to the condition of masculine or feminine sex-typed task. This manipulation was achieved by means of the following instructions (information in parentheses indicates instructions given in the male sex-typed task):

Our objective in this experiment is to investigate performance on a task that requires visual-motor ability. The task is similar to one found in many different types of intelligence tests and is believed to be correlated with success in many activities. We are interested in your performance on this IQ subtest in order to establish norms for Kansas State University students. In the past, female (male) college students have performed better on this test than males (females), probably since it involves verbal fluency and transcription (manual fluency and numbers) on which females (males) have consistently been found to perform better. We are interested in



investigating whether this sex difference will be obtained here. Once you are finished you will be told how you did in comparison to most females (males), since, you recall, they are usually better at this than males (females), so we state the norms in terms of how females (males) do since there is more research done on them and these norms are more stable.

Look at the first row of boxes on your sheet. Notice that each box has a number in the upper part and a mark in the lower part. Every number has a different mark. Now look at the second row, where the upper boxes have numbers but the squares beneath have no marks. You are to put in each of the squares the mark that goes with the number above it. As a warmup, you should try the first seven up to the thick solid line.

In a few moments you will be asked to fill in as many squares on the page as you can in one 30-sec. time period. The symbols and numbers are just like the ones you just did in practice. Any questions?

Following completion of the task, subjects' papers were scored to show success or failure according to performance. The scores were contingent on their actual performance, but success or failure manipulation was achieved by telling subjects that they had performed eight points (symbols)

above or below people of whichever gender they had been led to believe actually performs better. A second (alternate form) digit-symbol task was then administered. According to Atkinson's theory, perceived probability of success ( $P_S$ ) may be influenced by a subject's perception of his or her past ability. A measure of  $P_S$  was obtained immediately preceding each task by asking subjects to indicate how well they thought they would perform (Appendix B). It is thought that high n Ach subjects will increase their effort when given success feedback, while effort will increase less for low n Ach subjects. The extent of this increase would depend on whether  $P_S$  was high to begin with. The question of interest here is whether this increase in performance will be different for males and females depending on n Ach level, and whether they believe themselves to be performing a masculine or feminine task.

Subjects were asked at the end of the second task to indicate their attributions for success or failure by marking an "X" along each of four continua reflecting ability, effort, luck, and task difficulty attributions (Appendix C). Finally, perceptions toward the task were assessed by asking subjects to respond to seven items on a scale from one to five (Appendix D). These asked, for

example, "How much do you think your performance on this task reflects your intelligence?"

## Results

### TAT Scoring

Subjects' TAT stories were scored for the presence of achievement imagery by the method outlined by McClelland et al. (1953). The scores derived by the experimenter on the seven sets of practice stories provided by Smith and Feld (1958) are found in Appendix E. These scores are calculated two ways. The first index of agreement with the expert's scoring of the same stories is percentage agreement between the scorer and the expert on the mere presence of motive-related imagery. This is an initial decision as to whether the story contains any reference to an achievement goal that would justify scoring the remaining subcategories. The second index of agreement is a rank-order correlation between the scorer's and the expert's rankings of the total scores for each story.

It was possible to compare these scores obtained by the experimenter on sets A through D with the scoring reliabilities provided by Feld and Smith (1958) of 12 novice scorers. This comparison is also presented in Appendix E. In the cases where a comparison is possible, the reliabilities of the present scorer are always within the range of Feld and Smith's novice scorers. A comparison was not possible for practice sets E, F, and G because they were

new sets compiled from practice sets for other motives. Feld and Smith noted that a significant decrease in scoring reliability should be expected for sets E, F, and G since these sets are composed of different pictures than sets A through D.

#### WOFO Factors

Subjects' responses to the first 23 items on the WOFO were factor analyzed using a principal axis solution with oblique rotation, the same as that used by Helmreich and Spence (1978) in an attempt to come as close as possible to their factor structure. Helmreich and Spence used oblique rotation because the factors are not conceptually orthogonal; Varimax rotations were also attempted and resulted in highly similar factor structures.

The results of this factor analysis are shown in Table 1. For each of the factors, the items shown are those that loaded the highest on that factor. Next to each item is the factor from the Helmreich and Spence scales to which it was assigned based on their analysis. The factors obtained in the present analysis seem to be fairly similar to those reported by Helmreich and Spence (1978). Coefficients of congruence (Rummel, 1970) were computed between the four factors obtained in each study. Although Helmreich and Spence (1978) did not report overall factor loadings, the

congruence between their loadings for males and females and the overall loadings computed in the present study are quite high. They are as follows for males and females respectively: Mastery, .93 and .88; Competitiveness, .95 and .96; Work, .98 and .96; and Personal Unconcern, .97 and .98.

The reliabilities for each of the factor scales are found in Table 2. If the items were combined into Helmreich and Spence's scales, the reliabilities would only be slightly higher for the Competitiveness, Mastery, and Personal Unconcern scales. If the items were combined into the factor scales obtained in the present study, the reliability for the Work scale would be somewhat higher. Given the similarity of the scales as reflected by the high coefficients of congruence and the lack of great difference in reliability of one structure over the other, the decision was made to use the factor structure obtained in the present study in order to remain consistent with the data collected here. These reliabilities compare somewhat favorably with those obtained by Helmreich and Spence (1978), which ranged from .50 to .76.

#### N Ach Scores

A summary of subjects' scores on each of the five n Ach measures (TAT, Work, Competitiveness, Mastery, and Personal

Unconcern) is contained in Table 3. Scores are broken down by gender to allow for comparison of n Ach between males and females.

#### Hypothesis One

To test the hypothesis that both males and females will perform better when told that people of their gender are typically successful at the task, sex-type of task, subject gender, and the interaction between gender and sex-type of task were entered into a regression equation as separate steps to predict performance (Table 4). Performance on the first task was entered as a first step in order to account for practice effects. The only variable that yielded a significant R squared was gender. Means and standard deviations for males and females on the two performance measures are shown in Table 5. It appears that the higher performance of the females over the males is causing the significant difference.

#### Hypothesis Two

The second hypothesis predicted that performance on the task labeled "masculine" would be better for high n Ach women than for low n Ach women. Table 6 presents the results of four regression analyses of the n Ach scores (TAT score and the four WOFO scales) as predictors of performance

on the second task, with performance on the first task partialled out. These variables did not prove to significantly predict performance for any of the subjects, including females on a "male" task.

### Hypothesis Three

According to hypothesis three, performance on the masculine task should be better for high *n* Ach women who were told they had done better than most men than for high *n* Ach women who were told they had not done as well as most men. The interaction between each of the five *n* Ach measures and the subject's achievement condition (success or failure) was used to predict performance on the second task. Significant effects were obtained for females on the female task rather than on the male task as predicted. These results are shown in Table 7. Care must be exercised when interpreting this result since it occurs in a group other than that in which it was predicted, and the *n* in the particular cell is small.

From the significant betas in this condition (Table 7), it appears that the interactions between the *n* Ach scores and the achievement condition are accounting for the effect. Therefore, further analysis was done as shown in Table 8 to determine whether this was the case. The interactions were entered separately from the main effects



as Step 3; and the change in  $R^2$  indicated that it is the change from Step 2 to Step 3 that accounted for the difference. However, some additional variables (Work and Competitiveness scale scores) showed significant beta weights in this analysis, suggesting the instability of the results. This may be due to high intercorrelations among some of the predictors (Table 9), the relatively low reliability of the scales, or to the small  $n$  in this condition.

A further test of hypothesis three that is consistent with Atkinson's (1958) behavioral theory of achievement motivation is presented in Table 10. This consisted of performing separate analyses on subjects who scored high and low on initial expectation of success. According to Atkinson's theory, a person who strongly expects to succeed will react differently to success than one who does not expect to succeed. Subjects scores on perceived probability of success before the first task were split at the median (6.75) and a separate analysis was performed for these two groups. The results of Table 10, however, indicate that the results were unchanging (i.e., nonsignificant) for both groups. It is suspected that this is due to an inadequate measurement of initial expected success.

#### Expectancies

Besides subjects' performance on the task, it is likely that their expectations for how well they would do would differ as a function of gender, n Ach, sex-type of task, and achievement condition.

Gender, sex-type of task, and the interaction between them were used to predict the subjects' perceived probability of success on the first and second tasks; that is, both before and after they were given performance feedback. The results in Table 11 show that these variables did not predict perceived probability of success on either task; the best predictor of expectations of success on the second task is expectations of success on the first task.

In a separate analysis (Table 12), n Ach scale scores were used as predictors of perceived probability of success before tasks one and two. None of the scale scores predicted subjects' expectations for success. The TAT score did have a significant beta weight in the equation for the first task, but this result is probably not meaningful given the inconsistency of the TAT score in predicting other criteria in this study, particularly perceived probability of success on the second task.

Table 12 also shows the effect of whether subjects succeeded or failed on their expectations for success in task two. That this equation did not yield a significant  $R^2$

probably exemplifies the fact that the measure of subjects' expectations was not a particularly good one, since a subject who failed on the first task should lower his or her expectancies for the second task. The Pearson  $r$  for achievement condition (success or failure feedback immediately following task one) and perceived probability of success at task two is only .05.

Mediating effects of n Ach scores and perceptions of the task

Tables 13-17 present the results of an analysis to determine whether each of the n Ach scores (TAT and four WOFO scale scores) mediated the relationship between sex-type of the task and task performance. These tests were done to more fully explore the relationship between these measures, the performance variable, and sex-type of task beyond the regression analysis. Further analysis was done as shown in Table 18 to determine whether subjects' perceptions of the task mediated the relationship between sex-type of task and performance. These perceptions, it will be recalled, reflect how the subject feels about the task in terms of its value to him or her, how satisfied the subject was with his or her performance, and how much he or she enjoyed performing the task. If any of the scale scores or the subjects' perceptions were mediators, the difference

in  $R^2$  between equation 1 and equation 3 should be non-significant, while the difference in  $R^2$  between equation 2 and equation 3 would be significant. This would indicate that the scale score or the perception added some unique variance over and above sex-type of task to predict performance, thus suggesting a mediating effect.

Tables 13-17 indicate that none of the four WOFO scales nor the TAT score was a mediator in the relationship between sex-type of task and performance. But, as can be seen in Table 18, the performance-sex type task relationship was mediated by perceptions of the task for males but not for females. Table 19 shows that the perception mean is essentially the same for females on both tasks and for males on the "male" task, but is much lower for males on the "female" task. The effect of this difference on performance is reflected by the correlation between perception and performance; this correlation was essentially zero for females ( $r = -.06$ ) but was marginally significant for males ( $r = .18, p < .056$ ).

#### Self-attributions

Subjects were asked to rate how much they thought their performance depended on each of four possible factors: luck, effort, ability, or task difficulty. These self-attributions were each used as criteria in regression

equations with gender, achievement condition, and the interaction between gender and sex-type of task as predictors. The results of this analysis (Tables 20 & 21) show that attributions did not differ significantly between males and females or between persons in the "masculine" or "feminine" conditions. However, whether the subjects were in the success or failure condition did make a difference in how they attributed their performance. The means for these variables are shown in Table 22. Given the way that attributions were measured, subjects would be expected to respond differently if they thought they had succeeded than if they thought they had failed. Therefore, the significant effect for achievement condition is essentially a check on the manipulation of achievement condition.

Also of interest is whether attributions were affected by the subjects' level of n Ach. The four WOFO scale scores and the subjects' TAT scores were therefore entered as predictors for each of the four types of attributions. The results of Table 23 show that these variables did not affect how a subject perceived his or her performance on the task. There is one significant beta in Table 23, that for the Personal Unconcern scale in the prediction of the Ability attribution. The table of intercorrelations also shows that the  $r$  between these two variables is significant. This

effect should not be emphasized, however, since it is only one effect of many tests and there is no reason to think that persons who are unconcerned with how they are viewed by others should make more attributions to ability. The significant correlations between the Work scale score and attributions for luck and task difficulty did not yield any significant effects in the regression analysis.

## Discussion

In general, the results of this study failed to support the hypotheses. Women's levels of n Ach did not predict their performance or expectations for success on a task labelled "masculine" vs. a task labelled "feminine," nor did it matter whether they had been led to believe that they had succeeded or failed. However, it may be that some aspects of this particular study caused the lack of support for the hypotheses rather something faulty about the hypotheses themselves.

First, it is possible that subjects did not fully understand the instructions given to them that provided the sex-type of task manipulation. For example, the rationale provided for why men supposedly did better at the digit symbol substitution task concerned the fact that they are better at working with numbers and tasks involving manual ability. This information might not have been previously known to introductory psychology students who have not been exposed to scientific research about sex differences. Therefore, this brief mention might not have been enough to be meaningful to subjects interested only in completing their course requirement. The participants might have become more interested and involved in the instructions if this explanation had been expanded to include, say, examples

such as skills in auto mechanics and explanations of research showing males to be better at math than females.

While the results concerning males' perceptions of the female task do indicate that this information was processed for this group, it may be possible that the information was more memorable for males told that women did better at the task because it affected the way they viewed it. People told that men usually do better might have not paid as much attention to the information because it was not so unexpected.

In addition to the possible failure of the sex-type of task manipulation, the low reliabilities of the four WOFO scales indicate that not much confidence can be placed in the regression analyses in which they were used as predictors. The internal consistency of the TAT using pictures as items was not computed. Lundy (1985) pointed out that the alpha coefficient is an inappropriate test for the reliability of the TAT. Stimuli are pictures selected by the experimenter, usually to achieve some desired result, and cannot be thought of as items in the classical psychometric sense. The logic of the alpha coefficient is based on items chosen at random from a highly homogeneous domain or pool of items. Since the assumptions of the classical psychometric model are not met with the TAT,



coefficient alpha is therefore an inappropriate measure for this test. Unfortunately, Lundy did not offer any alternative ways to assess the reliability of the TAT. In fact, he went so far as to say that the entire concept of reliability is meaningless when applied to this measure, since subjects are told to be creative and if their stories differ from administration to administration, then they are just following instructions. Nevertheless, it can be inferred from the lack of predictive power of the TAT in this, as in most other studies, that the test lacks reliability and/or validity.

The TAT pictures used in this study were chosen specifically to elicit achievement imagery. However, at least two of the pictures used appeared to have elicited stories that reflected affiliative rather than achievement-related motives. The stories were not scored for n Ach, but it appeared during scoring that subjects were consistently writing about relationships and feelings in response to the picture of the older woman and the young man standing by the window, and the picture of the faces of an old man and a young man. Future research concerned with evoking achievement imagery might avoid these pictures. In addition, research designed to look at n Ach in women might benefit from using more pictures that depict women. As

Atkinson (1958) stated, "The confusion among results of studies using the present methods of content analysis with female subjects has produced frank recognition that there are still important questions to be answered before assuming that the measures presented are equally valid for women." This confusion does not seem to have been cleared up much over the last thirty years. Perhaps this is due to a basic inappropriateness of the TAT measure.

A recent study by Helmreich, Sawin, and Carsrud (1986) suggested that the validity of the WOFO may depend on when it is employed. Their study used the WOFO to predict job performance of new incumbents in an airline reservations position, considered a highly mundane task. The correlations between personality scale scores and a job performance criterion were not significant for the three months after trainees began working, but during the period of months 7-8, some strong relationships appeared. The Work orientation scale correlated as high as .36 in the final months tested, and Mastery was highly negatively correlated in these later periods. This negative correlation is due to the fact that the job was a somewhat boring one, and it will be recalled that individuals scoring high on the Mastery scale have a desire to perform challenging and demanding activities. The authors describe a "honeymoon effect,"

where people who first begin a job do well due to factors other than personality, such as ability. However, in a mundane job such as the one in their study, personality characteristics may have more of an effect once the "honeymoon" is over.

Perhaps the Digit Symbol Task used as a measure of performance in the present study, because of its highly repetitive nature, is comparable to the mundane job described by Helmreich et al. (1986). Since subjects were only in the experiment for a very short amount of time, this might not have allowed personality factors to enter into the determination of performance. Future research could be designed to look into whether labelling a task as "masculine" or "feminine" has any effect on this temporal relationship between personality scale scores and performance on a mundane task.

Throughout the entire 30-year history of research into achievement motivation, measurement problems have pervaded the literature. This historical problem of getting at *n Ach* does not mean that the concept is meaningless, only that our efforts to measure it have been weak. In discussing this problem in relation to fear of success, Paludi and Fankell-Hauser (1986) stated that differences in measurement and disagreements about the right way to measure the

construct have led to a lot of misunderstanding. Projective measures lack reliability and objective measures forego validity by limiting definitions of success and forcing subjects to answer "yes or no" to items that may not be at all related to what achievement means to them.

Claiming that "research in achievement motivation may be more meaningfully investigated by allowing men and women to define success for themselves" (p. 90), Paludi and Fankell-Hauser developed an idiographic approach to the measurement of women's success strivings. The technique of biographical interviewing elicited information from eighty women about how they viewed success and what methods they used to obtain it. When asked if they had ever been in a situation where they were about to succeed at something but feared that success, 91% of the women replied "no." They were also able to identify personal, parental, and peer influences on the women's achievement strivings. Women who had stronger desires to finish school, be independent, have successful relationships, or do whatever they considered success to be for them were also likely to have parents who reinforced and encouraged achievement efforts and to have been reared in a two-career family. These women viewed their relationship with their parents as warmer, closer, more sharing, and more supportive than did other women.

These findings are consistent with those reported by Henning and Jardim (1977) on successful businesswomen and their fathers.

The idiographic approach developed by Paludi and Fankell-Hauser (1986) may be a way to get around some of the criticisms of measures of n Ach. Achievement is personal and individual; one person's success may not be someone else's. McClelland et al. (1953) defined achievement within the cultural, social context prevalent at that time, and it appears to have been more applicable to men. Since they were pioneers in the field, that conceptualization has stuck. Basic assumptions about the nature of achievement must be reexamined in light of the fact that thirty years have gone by and the situation is entirely different now, especially for women.

In addition to the failure of this study to support the hypotheses concerning n Ach and performance, some previous research concerning sex differences in attributions to performance was also not replicated. Wittig (1985) noticed that discrepancies in findings concerning sex differences in attributional research may be due to different operationalizations of the attribution construct. For example, different methods of measuring attributions include a pie diagram which constrains all sources of attribution to

a cumulative 100%, a Likert-type scale anchored by skill vs. luck, and a separate Likert scale for each source of attribution (the method of measurement used in this study). As Wittig stated, "conclusions based on studies following one theoretical or measurement tradition may not generalize to other conceptualizations or measures of the construct" (p. 11). It seems reasonable to suggest that researchers in this area agree on some standardized way to measure attributions so that findings of different studies may be more comparable.

In discussing the reasons for the finding that women generally tend to make fewer attributions to effort, Frieze, Whitley, Hanusa, and McHugh (1982) cited self-derogation and low expectancy of success relative to men. The present data do not support these hypotheses, since not only was there no difference between men and women on attributions to effort, but men and women did not differ in their expectations for success. Perhaps college women are exhibiting different attributional patterns than those found over the last decade (and before) due to increased acceptance of women in (what were previously considered) less traditional roles.

The results of the present study may be taken to indicate that sex-role stereotypes which are the basis of differing norms for men and women may actually be

diminishing. This is, of course, good news for those who would strive to eliminate barriers to equal participation in all facets of life including employment, but not so good news for empirical researchers trying to achieve consistent results. This hypothesis would have to be tested empirically, preferably in a large representative national sample such as that used by Veroff et al. (1980).

Demand characteristics of the experiment may have had an effect on these diminished sex-role stereotypes and norm expectations exhibited by the subjects in this study. Although in informal conversation after the experiment subjects indicated that they believed the sex-type of task manipulation, the data could be interpreted to indicate that they did not. Perhaps norms have changed such that people just don't express traditional expectations, especially in an environment such as a psychology experiment where the researcher may be perceived to be interested in some type of sex difference in performance. In other words, it may not be the sex-role stereotypes which have diminished but the social desirability of their expression.

Given that sex-role stereotypes may be diminishing and the women in this study seem to have perceived themselves as having the same ability as males, biological gender may not be as important a variable as "psychological gender," such

as measured by the Bem Sex Role Inventory (Bem, 1974). This scale was developed to measure whether an individual endorses as self-descriptive attributes that are considered masculine or feminine. It may be more important to determine the types of sex-role-typical traits a person identifies with than to merely look at whether a person is male or female when examining performance on sex-typed tasks. If it is true that there are some females who identify with "male" traits, then they may be more likely to expect to do well on a task labelled "male." In the present study the measure of n Ach was assumed to correlate with sex-role traditionality, based on the work done by Alper (1974). However, no measure was taken of whether a person subscribes to male or female characteristics, and as Lenney (1979) stated, "the predictive utility of personality assessment can be greatly increased if one takes account of the pattern of characteristics within an individual, of the unique meanings of stimuli and expectations of reinforcement contingencies which moderate the person's behavior across different situations" (p. 713).

Lenney's advocacy of an idiographic approach is based on Mischel's (1968) criticism of personality research's inability to predict how a person will behave across situations, based on knowledge of how much a person



demonstrates some "trait." In other words, sex-role behaviors are complexly determined and will reflect a combination of personality variables that are likely to differ from situation to situation. For example, in a study by Spence and Helmreich (1980), male and female high school students' sex-role self descriptions were significantly related to certain aspects of their reported achievement orientations. However, significant improvements in predictions emerged when their educational aspirations and goals were both considered as predictor variables.

Of course, it must be mentioned that the BSRI and, indeed, the entire concept of androgyny have met with severe criticism almost from the beginning (e.g., Locksley & Colten, 1979; Pedhazur & Tetenbaum, 1979). However, these criticisms may not be relevant to the proposed usage of androgyny as a measure of traditionality of sex-role orientation. Given the way this scale was developed, this seems plausible. The construct validity of such a usage could be checked against a measurement such as the Wellesley Role Orientation Scale (Alper, 1974). Feather (1984) was able to correlate masculinity/femininity with corresponding values. For example, a self-described masculine type tends to value or see as good and important such qualities as assertiveness and independence. The implications of this

finding may be extended to the finding in the present study concerning males' perceptions of the female sex-typed task. It may be that masculine-typed individuals will be more likely to exhibit the tendency to downgrade, or not value, a feminine activity.

The importance of assessing the impact of psychological gender, or level of androgyny, on attributional patterns was demonstrated by Brewer and Blum (1979). They hypothesized that sex-role identification would affect causal attributions in achievement settings. Subjects high in femininity and subjects high in masculinity were assessed on their attributions for success or failure, performance in, and liking for certain courses. The courses were picked to be "masculine" (Math, Physical Science) or "feminine" (Humanities) areas of study. Using a cross-lagged correlational design, the authors found that sex-role identification influenced patterns of causal attribution for success and failure, which mediated aspirations and achievement behavior. Specifically, females who held self-descriptions of themselves as "feminine" were more likely to attribute failure internally and success externally in a math or science course, and were less likely to choose to take such a course during their freshman year when given the option. Therefore, sex-role identification

seems to be an important variable when considering achievement behavior on a sex-typed task. The results of the present study may have been more conclusive if this variable had been used in place of a simple "male/female" classification. In addition, the relationship between measures such as the BSRI and n Ach measures like the WOFO may be an interesting area for future research.

The initial purpose of this research was to examine a potential barrier to women's participation in areas of the work world usually open only to men. Perhaps, however, investigations into the causes of women's exclusion from such areas should focus on barriers external to the women themselves rather than some aspect of their personalities. Societal structure has been in place for a long time, and it may be necessary to make changes in it before we can change the motives and aspirations it helped to shape. The present study has not definitively shown that personality factors are not involved in people's strivings, but it may be that we need to look more closely at the situations and events which form personality variables before we have enough information to assess the personality variables themselves. Perhaps it will not even prove necessary to examine personality if we find that we can change long-standing discriminatory social institutions that caused the

inequities in women's work-force participation to begin with.

Role models and social support systems are two areas that have been seen as crucial to women's achievement in male-dominated areas. In an excellent example of the interaction between person and environment, Holahan (1979) examined frequency of stress experienced by female doctoral students in male-dominated and female-dominated areas of study. For the women in the male-dominated areas, there was a stronger relationship between personal need for support and the amount of stress experienced. The author stated that since a male-dominated field would offer a female student a less supportive environment, a woman with a high need for support will experience more stress than she would in a female-dominated atmosphere where she is much more likely to receive support for her efforts. In relating this to need for achievement, it would be interesting to investigate the relationship between social support and n Ach. Perhaps a woman with a low achievement motivation would be less likely to persist in an area where she is not receiving social support.

This study was designed to control some of the variables thought to be important in bringing about the sex-typing of occupations described in the introduction. It

was noted that while women are making up more of the work force than ever before, their concentration in certain low paying, low prestige jobs is about the same now as it ever was. The research attempted to answer the question, "are certain kinds of women more likely to attempt to succeed when told that people of their sex usually do not?" The research conducted was not able to shed any light on this issue. One discovery that was made, however, is that aside from certain aspects of their personality, men are more likely not to attempt to succeed at something at which women usually do well. This finding in and of itself may shed a glimmer of light onto the problems women face in getting appropriate value placed on the work they do. This emphasis may be more fruitful than looking for ways to get women into the highly paid jobs men do, as if these jobs were somehow more important simply because they command higher salaries. The devaluation of work done by teachers, nurses, and other caregivers is one of the grossest injustices committed by modern society. It may be committing a similar injustice to imply that women could hold higher paying, prestigious positions if only they would change some aspect of their personalities, or in other words, "be more like men."

As Mook (1983) noted, laboratory experiments that may not be directly generalizable to "real life" settings can

nonetheless be useful for examining "what can" happen rather than "what does." While the situation tested in this study does not allow for any sort of prediction outside the study itself, it was a test of a theory in that particular type of a situation. It has been demonstrated that a situation "can" be set up in which  $n$  Ach, as typically measured, fails to affect subjects' task performance. The conclusion from this finding is not that  $n$  Ach has no effect on performance, expectations, or attributions in a situation that is sex-typed, but that other variables such as perceptions of the task (attitude toward the value or importance of it) may play a larger role.

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## Appendix A

## Work and Family Orientation Questionnaire

The following statements describe reactions to conditions of work and challenging situations. For each item, indicate how much you agree or disagree with the statements, as it refers to yourself, by choosing the appropriate letter on the scale, A, B, C, D, or E.

1. I would rather do something at which I feel confident and relaxed than something which is challenging and difficult.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

2. It is important for me to do my work as well as I can even if it isn't popular with my coworkers.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

3. I enjoy working in situations involving competition with others.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

4. When a group I belong to plans an activity, I would rather direct it myself than just help out and have someone else organize it.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

5. I feel that good relations with my fellow workers are more important than performance on a task.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

6. I would rather learn easy fun games than difficult thought games.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

7. It is important to me to perform better than others on a task.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

8. I worry because my success may cause others to dislike me.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

9. I find satisfaction in working as well as I can.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |
10. If I am not good at something I would rather keep struggling to master it than move on to something I may be good at.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |
11. I avoid discussing my accomplishments because other people might be jealous.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |
12. Once I undertake a task, I persist.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |
13. I prefer to work in situations that require a high level of skill.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |
14. There is satisfaction in a job well done.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |
15. I feel that winning is important in both work and games.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |
16. I more often attempt tasks that I am not sure I can do than tasks that I believe I can do.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |
17. I sometimes work at less than my best because I feel that others may resent me for performing well.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |
18. I find satisfaction in exceeding my previous performance even if I don't outperform others.
- |                |                |                            |                   |                   |
|----------------|----------------|----------------------------|-------------------|-------------------|
| A              | B              | C                          | D                 | E                 |
| Strongly agree | Slightly agree | Neither agree nor disagree | Slightly disagree | Strongly disagree |

19. I like to work hard.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

20. Part of my enjoyment in doing things is improving my past performance.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

21. It annoys me when other people perform better than I do.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

22. I like to be busy all the time.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

23. I try harder when I'm in competition with other people.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

24. It is important for me to get a job in which there is opportunity for advancement.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

25. Assuming that I get (or am) married, I would like my husband or my wife to have a job or career that pays well.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

26. It is important to my future satisfaction in life to have a job or career that pays well.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

27. Assuming that I get (or am) married, I would like my husband or my wife to have a job or career that brings recognition and prestige from others.

A	B	C	D	E
Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree

28. It is important to me to have a job or career that will bring me prestige and recognition from others.

A	B	C	D	E
Strongly	Slightly	Neither agree	Slightly	Strongly
agree	agree	nor disagree	disagree	disagree

29. Assuming that I get (or am) married, it wouldn't bother me if my spouse had better job than I do.

A	B	C	D	E
Strongly	Slightly	Neither agree	Slightly	Strongly
agree	agree	nor disagree	disagree	disagree

30. What is the least amount of education that will satisfy you?

- a. graduate from high school
- b. some special vocational education beyond high school (electronics, auto mechanics, nursing, secretarial school, etc.)
- c. some college
- d. graduate from college
- e. advanced professional degree (Ph.D., MD, law degree, etc.)

31. How important do you think marriage will be to your satisfaction in life, in comparison to a job?

- a. The most important thing; I will work primarily for financial reasons.
- b. marriage relatively more important than my work.
- c. marriage and my work equally important.
- d. marriage relatively less important than my work.
- e. marriage is unimportant; I would be reasonably content if I did not marry.

32. How many children would you ideally like to have?

- a. 0
- b. 1
- c. 2
- d. 3
- e. 4 or more

## Appendix B

Please answer according to the following scale:

5	4	3	2	1
A	some-	didn't	very	not
great	what	care	little	at
deal				all

1) How hard did you try to succeed at this task?

5 4 3 2 1

2) How much did you enjoy this task?

5 4 3 2 1

3) How much did you want to succeed at this task?

5 4 3 2 1

4) How much do you think your performance on this task reflects your intelligence?

5 4 3 2 1

5) How valuable do you think this task is?

5 4 3 2 1

6) How much did you learn about yourself through performance of this task?

5 4 3 2 1

7) How satisfied were you with your performance?

5 4 3 2 1

## Appendix C

Please place an x at the point along each continuum that reflects your feelings concerning the task you just performed.

I did well	I did not
at the task	do well
because I	at the task
was lucky	because I
	was unlucky
x-----	

I did well	I did not
at the task	do well
because it	at the task
was easy	because it
	was hard
x-----	

I did well	I did not
at the task	do well
because I was	at the task
good at it	because I was
	bad at it
x-----	

I did well	I did not
at the task	do well
because I	at the task
tried hard	because I did
	not try hard
x-----	

## Appendix D

1	2	3	4	5	6	7	8	9	SCORE
—	⊥	⊐	L	U	O	△	X	=	

SAMPLES

2	1	3	7	2	4	8	2	1	3	2	1	4	2	3	5	2	3	1	4	5	6	3	1	4
1	5	4	2	7	6	3	5	7	2	8	5	4	6	3	7	2	8	1	9	5	8	4	7	3
6	2	5	1	9	2	8	3	7	4	6	5	9	4	8	3	7	2	6	1	5	4	6	3	7
9	2	8	1	7	9	4	6	8	5	9	7	1	8	5	2	9	4	8	6	3	7	9	8	6

How sure are you that you will be good at digit symbol substitution?

11-----50-----99  
 no                      50-50                      certain  
 chance                      chance





## Appendix E

A comparison of scoring reliabilities with the ranges of those reported of 12 novice scorers in Feld and Smith (1958)

Set	Present scorer		Feld and Smith's scorers	
	% Agreement	rank order correlation	% Agreement	rank order correlation
A	.90	---*		
B	.92	.94	.93-.74	.95-.59
C	.83	.69	.94-.86	.84-.77
D	.90	.82	.93-.77	.83-.66
E	.84	.80	-----	-----
F	.67	.64	-----	-----
G	.69	.72	-----	-----

\* The scoring of set A does not provide for a rank-order correlation with the expert's score since it is intended to provide practice only in recognizing whether or not the story contains achievement imagery.

Table 1

Factor Analysis of WOFO scores

Helmreich and Spence Label	Item #	Factor 1 Loadings
Work	14	.58
Personal Unconcern	17	.53
Work	20	.48
Work	19	.46
Work	9	.42
Work	18	.41
Mastery	12	.35
Work	2	.35
		Factor 2
Competitiveness	23	-.78
Competitiveness	3	-.50
Competitiveness	7	-.47
Competitiveness	21	-.43
Competitiveness	15	-.41
Personal Unconcern	5	.32
Mastery	4	-.29
		Factor 3
Mastery	1	.67
Mastery	6	.48
Mastery	16	.47

Table 1 (cont.)

Helmreich And Spence Label	Item #	Factor 3 Loadings
Mastery	13	.36
Mastery	10	.30
Mastery	22	.27
		Factor 4 Loadings
Personal Unconcern	8	.42
Personal Unconcern	11	.41

Table 2

A Comparison of Reliability of Factor Scores

Factor	Items combined according to to Helmreich and Spence's scales		Items combined according to scales obtained in the present analysis	
	Alpha	No. items	Alpha	No. items
Mastery	.56	8	.52	6
Work	.62	6	.65	7 <sup>a</sup>
Competi- tiveness	.66	5	.63	6 <sup>a</sup>
Personal Unconcern	.48	4	.33	2

<sup>a</sup> Items 2 and 5 were deleted from the scale for Work and Competitiveness, respectively, since an item analysis revealed that the reliabilities would be higher without them.

Table 3

n Ach Score Means and SDs by Gender

	Females	Males
TAT	-1.03 (3.4)	-.24 (3.2)
Work	24.46 (2.6)	24.04 (3.6)
Competitiveness	14.39 (3.8)	15.41 (4.2)
Mastery	13.74 (3.6)	14.17 (3.9)
Personal Unconcern	4.72 (1.8)	4.57 (1.9)

Table 4

Hypothesis One

Dependent Measure-Performance Second Task

Independent Vars.	R <sup>2</sup>	Beta
STEP ONE		
Performance		
First Task	.54*	.785*
STEP TWO		
Gender	.105*	.962
STEP THREE		
Sex-type		
task	.004	-.577
STEP FOUR		
Gender X		
Sex-type		
task	.001	.181

\* p &lt; .05

Table 5

Performance Means and Standard Deviations by Gender,  
Sex-type of Task, and Achievement Condition

Males n = 48		
Condition	Performance	
	Task 1	Task2
Female		
Sex-typed Task		
Succeed	24.1 (2.7)	24.6 (3.7)
Fail	21.9 (4.1)	23.5 (5.8)
Total	22.6 (3.8)	23.9 (5.1)
Male		
Sex-typed Task		
Succeed	22.3 (3.5)	24.0 (3.1)
Fail	23.3 (3.5)	25.6 (4.2)
Total	23.0 (3.4)	25.1 (3.9)
Total		
Succeed	23.2 (3.0)	24.5 (3.3)
Fail	22.7 (3.8)	24.6 (5.0)

Table 5 (cont.)

Females  
n = 104

Condition	Performance	
	Task 1	Task2
Female		
Sex-typed Task		
Succeed	25.3 (3.4)	26.6 (4.2)
Fail	24.1 (3.1)	26.4 (4.3)
Total	24.8 (3.3)	26.6 (4.2)
Male		
Sex-typed Task		
Succeed	24.0 (2.9)	26.4 (3.7)
Fail	24.7 (2.9)	27.5 (3.0)
Total	24.4 (2.9)	27.0 (3.3)
Total		
Succeed	24.6 (3.2)	26.5 (3.9)
Fail	24.6 (2.9)	27.1 (3.5)



Table 6

Hypothesis 2-- $R^2$ s

Independent Measures	Dependent Measure--Performance on Second Task			
	Males on Male task (n = 24)	Males on Female task (n = 21)	Females on Male task (n = 62)	Females on Female task (n = 38)
-----				
STEP ONE				
Performance First Task	.50*	.58*	.25*	.50*
STEP TWO				
n Ach	.59*	.59*	.28*	.60*
Change in $R^2$	.097	.008	.033	.102

\*  $p < .05$

Table 7

Hypothesis Three--RSQs

Dependent Measure--Performance on Second Task

Independent Measures	Males on Male task (n = 24)	Males on Female task (n = 21)	Females on Male task (n = 62)	Females on Female task (n = 38)
-----				
STEP ONE				
Performance First Task	.50*	.58*	.25*	.50*
STEP TWO				
N Ach	.11	.18	.05	.29*
STEP THREE				
Achievement Condition	.13	.007	.04	.002
STEP FOUR				
n Ach X Achievement Condition	.04	.26	.04	.33*

Table 7 (cont.)

<u>Beta Weights</u>			
<u>Females on Female task</u>			
Performance			
First Task	.53*	TAT X Achievement	
		Condition	.19
TAT	-.04		
		Work X Achievement	
Work	.14	Condition	.34*
Mastery	.24	Mastery X Achievement	
		Condition	-1.10*
Competitiveness	.30*		
		Competitiveness X Achievement	
Personal Unconcern	-.17	Condition	.15
Achievement			
Condition <sup>a</sup>		Personal Unconcern X	
		Achievement Condition	.75*

\*  $p < .05$ <sup>a</sup> This variable did not meet the criterion for entry.

Table 8

Hypothesis Three--Females on the Female Task

Dependent Measure--Performance on the Second Task		
Independent Variables	R <sup>2</sup>	Beta
STEP ONE	.50*	
Performance		
First Task		.86
STEP TWO	.62*	
n Ach		
TAT		-.12
Competitiveness		.22*
Mastery		-.18
Work		.30*
Personal Unconcern		.13
Achievement Condition		-1.19
Change in R <sup>2</sup> = .12		
STEP THREE	.73*	
TAT X Achievement		
Condition		.16
Competitiveness X		
Achievement Condition		.07
Mastery X Achievement		
Condition		-.98*
Work X Achievement		
Condition		
Personal Unconcern X		
Achievement Condition		.65
Change in R <sup>2</sup> = .11*		

Table 9

Intercorrelations of WQFO Subscales and TAT Scores

	1. Work	2. Competitiveness	3. Mastery	4. Personal Unconcern	5. TAT
1.	----	.26	.33*	.12	.25
2.		----	.23*	-.27	-.06
3.			----	-.21	.21
4.				----	-.16*
5.					----

\*p &lt; .05

Table 10

Hypothesis Three--RSQs

Independent	Dependent Measure--Performance on Second Task	
	Low Ps Task 1	High Ps Task 1
-----		
STEP ONE		
Performance		
First Task	.45*	.45*
STEP TWO		
N Ach	.025	.099
Achievement		
Condition	.037	.132
n Ach X		
Achievement		
Condition	.058	.181
Change in R <sup>2</sup>		

Table 11

RSQ Analysis of Expectancy Scores as a Function of gender  
and Sex-type of Task

Dependent Measure-Perceived Probability  
of Success Task 1

	R <sup>2</sup>	Beta
Gender		-.43
Sex-type task		-.99
Gender X Sex-type task		.22
	.006	

Dependent Measure--Perceived Probability  
of Success Task 2

	R <sup>2</sup>	Beta
STEP ONE	.68*	
Perceived Prob- ability of Success First task		.85*
STEP TWO	.69*	
Gender		1.19
Sex-type of task		.14
Gender X Sex-type of task		.007

Change in R<sup>2</sup> = .009

\*p < .05

Table 12

RSQ Analysis of Expectancy Scores as a Function of n Ach and Achievement Condition

Dependent Measure-Perceived Probability of Success Task 1	
	R <sup>2</sup>
	Beta
TAT	.13*
Competitiveness	.03
Mastery	.05
Work	.06
Personal Unconcern	-.10

.05

Dependent Measure--Perceived Probability of Success Task 2	
	R <sup>2</sup>
	Beta
STEP ONE	.03*
P <sub>S</sub>	
First task	.19*
STEP TWO	.06
TAT	-.04
Competitiveness	-.06
Mastery	-.08
Work	-.03
Personal Unconcern	.05
Achievement Condition	.43

Change in R<sup>2</sup> = .03

\*p &lt; .05



Table 12 (cont.)

STEP THREE	.08
TAT X Achievement Condition	-.15
Competitiveness X Achievement Condition	-.21
Mastery X Achievement Condition	.02
Work X Achievement Condition <sup>a</sup>	
Personal Unconcern X Achievement Condition	.007

Change in  $R^2 = .02$

<sup>a</sup> This variable did not meet the criterion for entry.

Table 13

Test for Mediating effect of Mastery scale score

Males

 $n = 46$ 

		$R^2$	F for difference in $R^2$ <sup>a</sup>
1	Mastery----> Performance	.0001	.865
2	Sex-type-----> Performance task	.02	0.0
3	Sex-type-->Mastery----> Performance task	.02	

Females

 $n = 106$ 

1	Mastery----> Performance	.0001	1.03
3	Sex-type-----> Performance task	.01	0.0
2	Sex-type-->Mastery----> Performance task	.01	

<sup>a</sup> Differences shown are between the  $R^2$  for the equation on that line and equation number 3, the full model.

Table 14

Test for Mediating effect of Work scale scores

Males $n = 46$			R <sup>2</sup>	F for difference in R <sup>2a</sup>
1	Work ---> Performance		.004	.69
2	Sex-type -----> Performance task		.02	0.0
3	Sex-type ---> Work ---> Performance task		.02	
Females $n = 104$			R <sup>2</sup>	F for difference in R <sup>2a</sup>
1	Work ---> Performance		.008	.12
2	Sex-type -----> Performance task		.005	.51
3	Sex-type ---> Work ---> Performance task		.01	

<sup>a</sup> Differences shown are between the R<sup>2</sup> for the equation on that line and equation number 3, the full model.

Table 15

Test for Mediating effect of Competiveness Scale Scores

Males

n = 45

		R <sup>2</sup>	F for difference in R <sup>2a</sup>
1	Comp.----> Performance	.02	1.32
2	Sex-type-----> Performance task	.02	1.32
3	Sex-type-->Comp.----> Performance task	.05	

Females

n = 104

1	Comp.----> Performance	.02	0.0
2	Sex-type-----> Performance task	.002	1.85
3	Sex-type-->Comp.----> Performance task	.02	

<sup>a</sup> Differences shown are between the R<sup>2</sup> for the equation on that line and equation number 3. the full model.

Table 16

Test for Mediating Effect of Personal Unconcern Scale

Males n = 48			R <sup>2</sup>	F for difference in R <sup>2a</sup>
1	P.U.---	Performance	.03	.47
2	Sex-type task	-----> Performance	.02	.94
3	Sex-type task	---> P.U.---> Performance	.04	
Females n = 106			R <sup>2</sup>	F for difference in R <sup>2a</sup>
1		P. U.---	.003	.73
2	Sex-type task	-----> Performance	.008	.21
3	Sex-type task	---> P. U.---> Performance	.01	

\*p &lt; .05

<sup>a</sup> Differences shown are between the R<sup>2</sup> for the equation on that line and equation number 3, the full model.

Table 17

Test for Mediating Effect of TAT Score on Performance

Males

n = 48

		R <sup>2</sup>	F for difference in R <sup>2a</sup>
1	TAT ---> Performance	.00	.73
2	Sex-type -----> Performance task	.02	.63
3	Sex-type ----> TAT ---> Performance task	.04	

Females

n = 103

1	TAT ---> Performance	.001	.28
2	Sex-type -----> Performance task	.004	0
3	Sex-type ----> TAT ---> Performance task	.004	

<sup>a</sup> Differences shown are between the R<sup>2</sup> for the equation on that line and equation number 3, the full model.

Table 18  
Test for Mediating Effect of Perception on Performance

Males  
 $n = 66$

			F2	F for difference in R2a
1		Percep. ---> Performance	.08	0.12
2	Sex-type ----->	Performance	.02	6.37*
3	Sex-type --->	Percep. ---> Performance	.11	
	task			

Females  
 $n = 102$

1		Percep. ---> Performance	.07	0.2
2	Sex-type ----->	Performance	.007	7.59*
3	Sex-type --->	Percep. ---> Performance	.03	
	task			

\* $p < .05$

a Differences shown are between the F2 for the equation on that line and equation number 3, the full model.

Table 19

Perception Means by Gender and Sex-type of Task

	Males	Females
Female	22.7	26.9
Sex-typed		
task	4.8	3.9
Male	26.4	26.4
Sex-typed		
task	3.1	3.8



Table 20

RSQ Analysis of Self-Attributions as a Function of Gender  
and Sex-type of Task

Dependent Measure--Ability		
Independent Variables	R <sup>2</sup>	Beta
Gender		.26
Sex-type task		-.10
Gender X Sex-type task		-.49
	.02	
Dependent Measure--Effort		
Independent Variables	R <sup>2</sup>	Beta
Gender		-.28
Sex-type task		.26
Gender X Sex-type task		-.37
	.01	
Dependent Measure--Luck		
Independent Variables	R <sup>2</sup>	Beta
Gender		-.14
Sex-type task		-.10
Gender X Sex-type task		-.08
	.003	

Table 20 (cont.)

Dependent Measure--Task Difficulty		
Independent Variables	R <sup>2</sup>	Beta
Gender		.20
Sex-type task		.24
Gender X Sex-type task		-.84
	.11	

\*p &lt; .05

Table 21

RSQ Analysis of Self-Attributions as a Function of  
Achievement Condition

Independent Variable-- Achievement Condition	R <sup>2</sup>	Beta
Dependent Measure		
Ability	.05*	-1.11
Effort	.07*	-1.15
Luck	.01*	-1.13
Task Difficulty	.06*	-1.30

\*p < .05

Table 22  
Means and Standard Deviations for Self-attributions

Males n = 48				
Condition	Attribution			
	Ability	Effort	Luck	Task Difficulty
Female Sex-typed Task				
Succeed	5.7 (3.1)	3.9 (2.4)	7.4 (.5)	5.8 (3.6)
Fail	5.0 (3.0)	5.4 (1.8)	6.1 (2.1)	5.8 (2.2)
Total	5.3 (3.0)	4.9 (2.1)	6.5 (1.8)	5.8 (2.7)
Male Sex-typed Task				
Succeed	5.4 (3.0)	4.2 (2.7)	5.3 (2.6)	4.9 (2.6)
Fail	6.4 (1.7)	5.5 (2.3)	7.4 (1.2)	5.7 (2.0)
Total	6.1 (2.1)	5.1 (2.4)	6.8 (1.9)	5.4 (2.1)
Total	5.8 (2.6)	5.1 (2.2)	6.7 (1.8)	5.2 (2.4)

Table 22 (cont.)

Females n = 104				
Condition	Attribution			
	Ability	Effort	Luck	Task Difficulty
Female Sex-typed Task				
Succeed	4.7 (2.5)	3.2 (1.9)	5.8 (2.5)	3.9 (2.4)
Fail	5.8 (3.0)	4.4 (2.4)	6.2 (2.5)	5.3 (2.4)
Total	5.1 (2.7)	3.7 (2.2)	6.0 (2.5)	4.5 (2.5)
Male Sex-typed Task				
Succeed	5.6 (1.9)	3.9 (1.8)	6.1 (1.9)	5.0 (2.1)
Fail	6.2 (2.0)	5.3 (1.8)	6.6 (1.6)	6.0 (2.2)
Total	6.2 (2.0)	4.7 (1.9)	6.2 (1.8)	5.6 (2.2)
Total	5.8 (2.4)	4.3 (2.1)	6.2 (2.1)	5.6 (2.4)

Table 23

RSQ Analysis of Self-Attributions as a Function of n Ach Scores

Dependent Measure--Ability		
Independent Variables	R <sup>2</sup>	Beta
Work		-.03
Mastery		-.04
Competitiveness		.04
Personal Unconcern		.25*
TAT		-.04
	.05	
Dependent Measure--Effort		
Independent Variables	R <sup>2</sup>	Beta
Work		-.11
Mastery		-.02
Competitiveness		.07
Personal Unconcern		.14
TAT		-.04
	.05	

Table 23 (cont.)

Dependent Measure--Luck		
Independent Variables	R <sup>2</sup>	Beta
Work		.11
Mastery		-.04
Competitiveness		.03
Personal Unconcern		.03
TAT		-.001
	.03	
Dependent Measure--Task Difficulty		
Independent Variables	R <sup>2</sup>	Beta
Work		-.10
Mastery		-.06
Competitiveness		.03
Personal Unconcern		.16
TAT		-.05
	.05	

\*p &lt; .05

Figure 1  
Hypothesis One

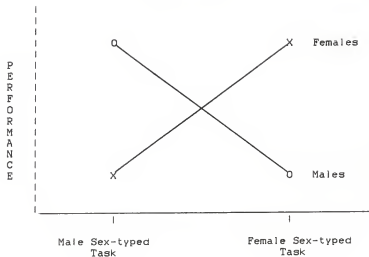




Figure 2

Hypothesis Two  
Hypothesized Performance for Females on Male Sex-typed Task

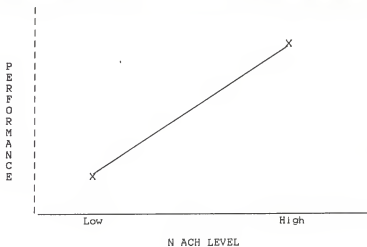
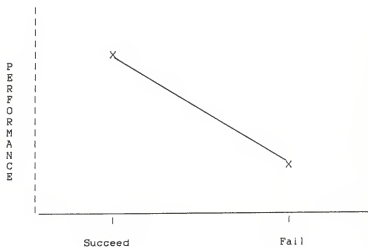


Figure 3

Hypothesis Three  
Hypothesized Performance for High n Ach Females on Male  
Sex-typed Task



ACHIEVEMENT MOTIVATION AND SUCCESS IN ATYPICAL SEX-TYPED  
TASKS

by

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B.A.. North Adams State College. 1982

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1986

## Abstract

Although the percentage of the work force made up by women is rapidly increasing, the entry of women into high-paying, high-prestige, male-dominated occupations is stagnant. In this study, research concerning internal barriers to women's apparent lack of achievement motivation is reviewed. Attention is also given to sex differences in expectancies and attributions for success. In addition, certain aspects of the situation in which the person is performing are thought to have an effect on success.

One hundred and fifty-four subjects were pretested in their general psychology class on their levels of achievement motivation using two different tests: the TAT (Murray, 1938) and the Work and Family Orientation Questionnaire (Helmreich and Spence, 1978). They were then presented with a Digit Symbol Substitution task and were told that either males or females usually perform better at it. Upon completing the task, subjects were then given feedback designed to make them believe that they had either succeeded or failed. Three hypotheses were made concerning women's performance on the task: 1) that they would perform better as a group when told that women usually perform better than men; 2) that women with a high need for achievement would do better at the "male" task than women with a low need for achievement; and 3) that women who are

high in need for achievement and are lead to believe that they had done better than most men on the "male" sex-typed task would do even better the second time around. Based on previous research, some research questions concerning expectations, attributions, and achievement level in men are put forth.

In general, none of the hypotheses concerning women's achievement motivation and success on the task labeled male were supported. This is thought to be due primarily to the lack of reliability of the measures of need for achievement, as well as some problems with the manipulations performed. One interesting significant result had to do with mens' perceptions of the task labelled "feminine." Men tended to downgrade the importance of the task labeled as feminine and also not perform as well at it. The implications of these findings for the entry of women into occupations usually considered masculine are discussed.